

CONFIDENTIAL

(5)

PROGRESS REPORT

FOR

(July) - NOVEMBER 1955

ON

PLASTIC HOT DIP PACKAGING

1210-C-2

008632

DOC	138	REV DATE	2 JULY 80	BY	057447
ORIG COMP	656	OPI	56	TYPE	30
ORIG CLASS	M	PAGES	10	REV CLASS	C
JUST	22	NEXT REV	2010	AUTH:	HR 10-2

ORIGINAL CL BY 23 59 79  
☐ DECL ☒ REVW ON 2/07/2010  
EXT BYND 6 YRS BY SAME  
REASON 3d(3)

December 19, 1955

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Twenty of the following units were dipped this month:

R. R. Torpedo

Pull Type Fuze Lighter

Pocket Incendiary

A. C. Delay

Incendiary Head Adapter

2.36" and 3.5" Rocket Adapters

Mk I and Mk II Pencils

These units have been tested forty-eight (48) hours after dipping and also after being subject to surveillance conditions. All units have functioned properly. Five units of each are now in igloo storage and five units are buried in wet loam.

The Fuzee Matches and Thermit Wells have been packaged, however, a sufficient quantity will not be available for all tests. Fuzee Matches have been tested forty-eight (48) hours after dipping and have operated satisfactorily. Five cans of this item are now in burial.

Five Thermit Wells have been buried and two have been fired forty-eight (48) hours after dipping. The forty-eight (48) hour test was satisfactory.

### Future Work

Package C-3, C-4, Primacord and Black Powder Fuse. Finish Thermit Wells and Fuzee Matches. Continue Testing.

### Financial Statement

Total Amount of Contract	\$12,000.00
Obligations for November, 1955	1,909.81
Total Obligations to November 30, 1955	6,359.17
Balance of Contract	5,640.83

Expiration Date - March 27, 1956

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**PROGRESS REPORT  
FOR  
OCTOBER 1955  
ON  
PLASTIC HOT DIP PACKAGING**

**November 28, 1955**

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The main effort on this project for the past month has been directed toward the long term dipping program. This approach has a twofold purpose: (1) to establish a safety criterion for dipping active units in hot plastic, (2) to investigate packaging problems. All units, with the exception of the Fuzee Matches, have been immersed in the hot dip for a one-hour period. Fuzee Matches are unavailable at this time.

None of the units detonated while immersed in the hot plastic at 325°F or during the cooling period. However, after the long term dip, the AC Delay unit is rendered useless. More items may be added to this list pending the outcome of future experiments.

New packaging has been designed for C-3, C-4, Primacord and Black Powder Time Fuse. Three units have not been tested, as yet, to determine the effect of the packaging and long term dipping. To successfully dip the cardboard packaged units, scrim bags have been made from plastic impregnated cloth manufactured by Plastic Film Corporation, Plainfield, Connecticut. The units are placed in the bags and the bags are then evacuated. The plastic covered cloth serves to reduce the amount of expanding air within the package and prevent the hot plastic from entering the container.

Those units which have been tested for both short and long term dips are now in the process of being prepared for the dip process to start Phase 4 of the program.

### Future Work

Complete the short time dipping on the Rocket Adapter, C-3, C-4, Black Powder and Primacord. Prepare sealed packages for Phase 4.

### Financial Statement

Total Amount of Contract	\$12,000.00
Obligations for October, 1955	1,227.79
Total Obligations to October 31, 1955	4,449.36
Balance of Contract	\$7,550.64

Expiration Date - March 27, 1956

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PROGRESS REPORT  
FOR  
SEPTEMBER 1955  
ON  
PLASTIC HOT DIP PACKAGING

October 25, 1955

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The efforts to find a suitable primary coating which will be capable of withstanding the heat of the hot-dip plastic at the same time preventing the escape of air from the package and thereby preventing the formation of bubbles and the consequent perforation of the plastic coat are being continued. The only units plagued with this difficulty are those contained in cardboard boxes and those in metallic cans having loose fitting covers and openings at the joints. No such difficulty exists with the hermetically sealed cans and these can be hot-dipped as shipped. Surveillance tests on units so contained can begin as soon as the equipment is readied.

Latex is presently being considered for the primary coating. A program is presently underway to determine the proper combination of latex, coagulant and curing to obtain a tough elastic coating. Further tests to determine the heat sensitivity of the various explosive materials to be used were conducted.

Financial Statement

Total Amount of Contract	\$12,000.00
Obligations for September, 1955	1,295.66
Total Obligations to September 30, 1955	3,221.57
Balance of Contract	\$8,778.43

Expiration Date - March 27, 1956

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**PROGRESS REPORT  
FOR  
AUGUST 1955  
ON  
PLASTIC HOT DIP PACKAGING**

**September 23, 1955**

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The tests to determine the internal transient temperatures for most of the smaller packages have been completed, and at present a series of tests to determine the temperatures required for spontaneous initiation are being conducted. During these tests the time required for initiation, the explosive temperature and the chamber temperature are being recorded; consequently, safe operating limits for the various explosives and detonators will be established.

Various types of packages have been devised for those units not contained in the hermetically sealed cans, and further tests will be conducted as soon as the requested information on packaging materials is forwarded to us by the supplier.

Financial Statement

Total Amount of Contract	\$12,000.00
Expenditures for August, 1955	\$1,269.25
Total Expenditures to August 31, 1955	\$1,925.91
Balance of Contract	\$10,074.09

Expiration Date - March 27, 1956

*Signed  
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*file: Bureau  
Packaging  
1955*

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PROGRESS REPORT

FOR

JULY 1955

ON

PLASTIC HOT DIP PACKAGING

August 20, 1955

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The first part of the Hot Dip Packaging Program, the part in which we are presently engaged, is being devoted primarily to the determination of the transient temperatures obtained within the various units when they are subjected to the high temperatures of the plastic dip. These temperatures are being measured by thermocouples located at strategic positions within the units. The maximum test period is being arbitrarily limited to one hour.

The following units have been instrumented and tested:

- AC Delay
- Mark II Pencils
- Pocket Incendiary Units
- P-Unit
- RR Torpedoes

Not all the data has been analyzed, but some of the results can be reported.

The AC Delay is rendered useless after approximately 12 minutes of immersion, because the heat caused the cellulose nitrate firing pin retaining disc to soften and deteriorate allowing the firing pin to be released. The temperatures attained within the packaged pocket incendiary units are above both the softening temperature of the cellulose nitrate units and the flash point of the gasoline, and consequently the unit would present a potential hazard should it be accidentally dropped into the hot dip. The above test has been conducted on inert units.

#### Future Work

The above tests are to be extended to live units wherever practicable. However, tests to determine the ignition temperatures of the various components of the units will be conducted first.

#### Financial Statement

Total Amount of Contract	\$12,000.00
Expenditures for July, 1955	\$656.66
Total Expenditures to 31 July, 1955	\$656.66
Balance of Contract	\$11,343.34

Expiration Date - March 27, 1956

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